

CLAIMS:

1. A bulk acoustic wave (BAW) resonator comprising at least a bottom electrode (3), a piezoelectric layer (2) and a top electrode (1), a basic substrate (5) and means for absorbing or scattering spurious modes, characterized in that the means for absorbing or scattering spurious modes are selected from the group of
 - 5 - roughened rear side of the basic substrate (5),
 - on rear side of substrate (5) disposed absorbing layer (6) and/or
 - on front side of substrate (5) disposed absorbing layer (7).
2. A BAW resonator as claimed in claim 1, characterized in that the rear
10 side of the basic substrate (5) is roughened by means of etching or blasting.
3. A bulk resonator as claimed in claim 1, characterized in that the rear side absorbing layer (6) and/or the front side absorbing layer (7) are/is selected from the group of glue such as epoxy glue, elasticoviscous materials such as polyimide, rubber,
15 silicon rubber, plastic materials, porous media like aerogel or xerogel or porous thin films.
4. A bulk acoustic wave filter comprising at least two bulk acoustic wave resonators which comprise means for suppression of pass-band ripple in a ladder or in a
20 lattice type configuration characterized in that the resonator's means for suppression of pass-band ripple are alternatively
 - a roughened rear side of the basic substrate (5),
 - an absorbing layer (6) disposed on the rear side of the substrate (5) and/or
 - an absorbing layer (7) disposed on the front side of the substrate (5) and
25 below a Bragg reflector (4).

5. A bulk resonator as defined in one of the preceding claims, characterized in that
- the top electrode is made of a metal material such as aluminum (Al) and / or
 - 5 - the piezoelectric layer is made of aluminum nitride (AlN), zinc oxide (ZnO) or lead zirconate titanate (PZT) and / or
 - the bottom electrode is made of a metal material such as Molybdenum (Mo), Platinum (Pt) or Tungsten (W).
- 10 6. Method for manufacturing a bulk acoustic wave resonator comprising the steps of
- providing a silicon chip or dice,
 - disposing the top electrode (1) on the silicon dice,
 - disposing the piezoelectric layer (2),
 - 15 - disposing the bottom electrode (3),
 - disposing the Bragg reflector (4),
 - disposing the front side absorbing layer (7),
 - disposing the basic substrate (5),
 - removing the silicon dice.